

ALIGNMENT METHOD FOR
FABRICATION OF INTEGRATED
ULTRASONIC TRANSDUCER ARRAY

ABSTRACT OF THE DISCLOSURE

An integrated circuit is fabricated by micromachining a hexagonal array of cMUT elements on top of a substrate comprising a hexagonal array of CMOS cells. Each cMUT element overlies a respective CMOS cell in one-to-one correspondence. During layout of the mask for micromachining the cMUT layer, either the hexagonal pattern or the alignment key is rotated until an axis of symmetry of the hexagonal pattern is aligned with an axis of the alignment key. Later, when the mask is superimposed on the CMOS substrate, the alignment key on the mask is aligned with an alignment key on the substrate. This ensures that the cMUT elements formed by optical lithography will be matched to the CMOS cells.